

OBITUARY.

The Council regret that they have to record the loss by death of the following Fellows and Associates during the past year:—

Fellows :—Joseph Baxendell.
 W. R. S. Calcott.
 J. B. Dancer.
 Rev. Thomas Gaskin.
 Rev. H. A. Goodwin.
 Peter Gray.
 Capt. Richard Ladd.
 W. G. Lettsom.
 Alfred Morris.
 Balfour Stewart.
 J. M. Walden.
 Rev. S. W. Waud.

Associates :—Eduard Luther.
 H. C. F. C. Schjellerup.

JOSEPH BAXENDELL was born April 19, 1815, at Bank Top, Manchester. He was the son of Thomas Baxendell. The groundwork of his education was laid by Mr. Whalley, of Cheetham Hill, but to a large extent he was self-educated. In his childhood he enjoyed but poor health, and when about fourteen years of age his father placed him on board the "Mary Scott," bound for Valparaiso, with the hope that the voyage would invigorate his weakly constitution. While off the coast of Central America it was his good fortune to witness the extraordinary shower of meteors which occurred on November 13, 1833; later on his ship experienced the shock of the earthquake which was attended with such disastrous results to the Pacific coast of South America. After various voyages to South America he again settled in Manchester, and with his friend Mr. Robert Worthington, of Crumpsall Old Hall, erected the Crumpsall Observatory, where the large 13-inch reflector (the speculum of which he had himself cast, ground, and polished) was mounted, beside a small 5-inch equatorial refractor; here he industriously applied the evenings of his busy days to the observation and discovery of variable stars, and the excellent work done here by Mr. Baxendell won for it a high position

amongst private observatories, and engaged him in correspondence with the most eminent astronomers, both in this country and abroad.

The private life led by Mr. Baxendell furnishes little to record; like many who have attained to scientific eminence in Manchester, he preferred to live a quiet, retired life, seeking no applause. Of his personal character it may be said that in him amiability of temper and firmness of character were happily blended. Some years since his scientific labours were interrupted by a distressing malady of the lower jaw.

In 1859 he was appointed Astronomer to the Corporation of Manchester.

In his later years he resided at Southport, where in 1871 he was appointed Superintendent of a Meteorological Observatory in Hesketh Park, fitted up and presented by John Fernley, Esq., formerly of Manchester; and in 1877 he erected his own private Astronomical Observatory in Birkdale, Southport, and resumed his observations of variable stars, &c., with a 6-inch equatorial refractor, by Cooke & Sons, assisted for some years past by his son.

In 1865 he married Mary Anne, sister to Mr. Norman Pogson, Government Astronomer of Madras; the issue of the marriage was an only son. He closed a useful life on October 7, 1887, in the 73rd year of his age.

In 1858 he joined the Manchester Literary and Philosophical Society; Mr. Baxendell was appointed Editor, and one of the Honorary Secretaries, a post which he maintained with advantage to the Society for twenty-four years; to maintain for it a position worthy of its past history seemed to be one of the objects of his life, and for this reason probably the greater and most valuable portion of his work was first made public through the medium of its *Proceedings* and *Memoirs*. In 1884 he was elected a Fellow of the Royal Society. Of foreign societies he was a corresponding member of the Roy. Phys. Econ. Soc., Königsberg, and Acad. Sc. and Lit., Palermo. In the Royal Society's Catalogue of Scientific Papers his name will be found associated with a commendable show of work. The earliest paper mentioned is one "On the Variability of λ Tauri," published in the *Monthly Notices*, vol. ix., 1848-49; the list also includes a joint paper by J. Baxendell and H. E. Roscoe, "On the Relative Intensities of Direct Sunlight and Diffuse Daylight at Different Altitudes of the Sun" (*Proceedings of Royal Society*, vol. xv.); besides his communications to the Society, he also contributed to the *Astronomische Nachrichten*, and towards the close of his life he published several articles in the *Observatory* and Liverpool Astronomical Society's *Journal*. But most of his work is to be found in the *Memoirs* and *Proceedings of the Manchester Literary and Philosophical Society*, to which he contributed nearly forty papers on astronomical subjects. These consist for the most part of observations of variable stars, but include also papers on

planets, comets, meteors, Sun-spots and eclipses. Any notice of Mr. Baxendell would be imperfect which gave no account of his meteorological work. Of his position as a meteorologist it has been remarked by a labourer in the same field, the late Prof. Baifour Stewart :—"Baxendell's contributions to meteorology are very important, and in one branch of the science he may claim to be the pioneer." One of his most original and important papers on this subject is entitled "On a Periodic Change in the Magnetic Condition of the Earth and the Distribution of Temperature over its Surface." In this paper he advanced a hypothesis which may be more particularly alluded to.

Considerations of the irregularities of some of the variable stars led him to regard it as highly probable that the light of the Sun, and also its magnetic and heating power, might be subject to changes of a more complicated character than have hitherto been supposed ; and besides the changes indicated by the greater or less frequency of solar spots, other changes of a minor character, and occurring in shorter periods, might also take place. To account for a short variable period which he detected he supposes that there may be a ring of nebulous matter, either not of uniform density or discontinuous, circulating round the Sun in a plane nearly coincident with the plane of the ecliptic, and at a mean distance from the Sun of about one-sixth of the radius of the Earth's orbit ; that the attractive force of the Sun on the ring is alternately increased and diminished by the operation of the forces which produce the solar spots, being greatest at the times of minimum frequency, and least when the spots are most numerous ; the dimensions of the ring and its period of revolution round the Sun will vary, their maximum and minimum values occurring respectively at the times of maximum and minimum solar spot frequency. This ring is supposed to act not only in reflecting and absorbing a portion of the heat and light which would have otherwise reached the Earth, but also in altering the direction of the lines of magnetic force, the magnetic influence being more marked than the thermal influence. From the maximum and minimum values of the temperature period he concludes that the greatest and least period of revolution of the ring will be 29.12 and 22.08 days respectively ; from these numbers he infers that the greatest distance of the ring from the Sun is 0.185, the radius of the Earth's orbit being taken as unity, the least distance 0.154, and the mean distance 0.169 ; the greatest attractive force of the Sun on the ring being taken as unity, the least will be 0.691. He refers to Leverrier's supposed planet within the orbit of *Mercury* acting as a disturbing body on that planet, and he states that it is remarkable that the mean distance which Leverrier seemed to regard as most probable is precisely that which he has found for the assumed ring of nebulous matter.

It is impossible in a brief notice of the scientific labours of Mr. Baxendell to refer particularly to the very numerous and

important papers he contributed to astronomy, meteorology, and sanitary science. They evince his great mental activity, and the earnestness with which he pursued his investigations. Indeed, his love of knowledge for its own sake was essentially the delight and solace of his life, and even in old age and sickness it seemed to remain as bright and unwearied as ever.

Up to the last, when discharging his editorial duties for the Manchester Philosophical Society, with which he was in a special sense identified, it was his habit not merely to read the papers which passed through his hands, but to digest them and to propound questions to the writers on the most varied subjects not in his editorial capacity, but in that of a student. This extraordinarily healthy, yet at the same time quiet, activity of a mind which never seemed to regard anything as not worth knowing, is abundantly exemplified in the record of his life. If he has not established any great generalisation or law as a lasting monument of his labours, he has at least introduced some order, directed attention to some far-reaching truths, and illuminated many obscure paths for future investigators.

He was elected a Fellow of this Society January 9, 1857.

WILLIAM ROBERT STUART CALLCOTT was born on August 8, 1851, at The Mall, Kensington Gravel Pits, where his family had lived for many generations.

He was the youngest son of the late William Hutchins Callcott, the well-known musical composer, and grandson of Dr. Callcott, whose glees and other compositions have a world-wide reputation. He was also a grand-nephew of the great landscape painter and Royal Academician, Sir Augustus W. Callcott.

From his early boyhood Robert Callcott exhibited great genius, especially for music, and had all the advantages which his distinguished connection both with painting and music procured for him. He was educated at a private school at Hurstmonceux and at The Philberds, near Maidenhead, a spot to which in after years he loved to retire for rest and quiet, and where he died, after only a few days' illness, on April 7, 1886.

On leaving school he evinced a great taste for Church music. His extempore organ playing attracted the attention of the late Henry Smart, who took great interest in him and often entrusted his young *protégé* with the accompaniment of the services at old St. Pancras Church. The pupil soon became devotedly attached to the master, and the death of the latter was a great blow to him. The few years which elapsed between this event and his own death were occupied in teaching and in filling various positions as an organist, notably at Christ Church, Kensington. He possessed great aptitude for choir-training, and was especially successful in cultivating boys' voices, often out of the crudest material. At the time of his death he was engaged also in